

Developmental Relationships in Engineering

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Dr. Heidi Sherick has worked in higher education for over 25 years. Currently, Heidi is the Faculty Development and Leadership Specialist in the College of Engineering and the Medical School at the University of Michigan. Her primary role is to design and initiate a suite of professional leadership development activities and coaching, mentoring, and sponsoring strategies for faculty. She provides one-on-one coaching for faculty in new executive leadership roles and for Associate level faculty in Engineering, facilitating career advancement, fostering connections, and providing leadership development opportunities. Heidi served as the Assistant Dean for Undergraduate Programs and Diversity in the College of Engineering at Montana State University from 2001-2012. She also served as the Director of EMPower, the engineering minority program. Heidi earned her PhD in Educational Leadership from University of Nebraska-Lincoln in 2014. She studied developmental relationships in higher education and investigated the processes through which higher education leadership is fostered including mentoring, coaching, role-modeling, sponsoring, and networking.

WIP: Developmental Relationships in Engineering

Abstract

This work in progress paper discusses a study exploring informal faculty development of engineering faculty leaders. Specifically, the purpose of this study is to better understand how mentoring relationships help promote faculty career advancement. Higher education rarely develops the capacity of its leaders in an intentional way: “colleges and universities, unlike many similarly sized corporations, do not view talent development as a strategic priority” [4]. The complexity of higher education, as well as the increased demands and challenges, require better prepared leaders. Despite this need, there is little research on informal one-on-one leadership development tactics in higher education. To understand how leadership is fostered informally, this study focuses on developmental relationships experienced by engineering faculty leaders. The research question to be answered by this study is: What functions of developmental relationships, such as role modeling, stretch assignments, and networking, help engineering faculty leaders along their career journey?

This paper highlights the background, methods, anticipated results, and significance of a study which utilizes a qualitative approach of interviews with engineering faculty leaders at two institutions. Through interviews, data are being gathered about what happened in the faculty member’s developmental relationship experiences, and to what extent the individual developmental relationship functions impacted their leadership development and career advancement. Through data collection and analysis, the researcher will identify emergent developmental relationship functions specific to engineering faculty. Researcher field notes reveal anticipated findings such as the power of observation and the significance of role modeling experienced by the participants. The anticipated findings support new functions identified in previous research specific to the population of higher education leaders. The importance of peer relationships and the existence of multiple developers are also consistent with previous findings. Results from this study will inform a mentoring model being developed by the author which will help faculty focus on being intentional about relationship building which can, in turn, make a difference in career success, exploring networks, sponsors, mentors, and collaborators. The proposed model highlights a duality of strategies to serve faculty early in their career (mentee) and more senior in their career (mentor). Collecting feedback from the participants in this study on the proposed model (Appendix B) provides a significant benefit and immediate contribution.

Background

Kathy Kram [5] set out to study how adults affect other adults in the work place. She stayed away from using the term “mentor” because of the host of contradictory meanings associated with it and she coined the term “developmental relationship” instead. Developmental relationships occur when an influential individual invests in the career growth of another individual. This investment can be made through behaviors such as mentoring, coaching, networking, or sponsoring. In addition, actions such as teaching, counseling, evaluating, listening, advocating, showcasing, collaborating, empowering, and challenging through developmental relationships are integral to leadership development and career advancement [1],[5],[7],[8].

Kram clarified the nature of relationships at work that enhance career development, defined essential characteristics of developmental relationships (career support and psychosocial support), and suggested ways to build them at work [5]. Research supports a broader view of mentoring beyond a traditional, vertical dyad. Many relationships can meet developmental needs, such as relationships with bosses, peers, and subordinates [6]. In the literature, researchers use the terms mentoring relationships and developmental relationships interchangeably. “Traditionally, academics have fallen back on the concept of mentoring to describe these relationships” [8].

Existing literature on development relationships supported nine functions first identified by Kram [5]. The nine functions are: sponsoring, exposure and visibility, coaching, protecting, stretch assignments, role modeling, acceptance and confirmation, counseling, and friendship [3],[5]. In research conducted in 2014 on higher education leaders, the author added two to the model that emerged frequently in the data among academics: problem solving and collaboration [9]. On their own or in combination with others, these functions can have an important impact on an individual’s advancement into leadership positions [7]. Explanations and associated behaviors are organized in a proposed Engineering Model of Faculty Leadership Relationships in Appendix B.

Research in business and industry settings suggests that developmental relationships enhance the personal and professional development of individuals [1], [3], [6], [8]. Chandler and colleagues highlight the benefits of developmental relationships on learners, developers, and organizations [1]. Focusing specifically on the learner, according to Chandler et al. [1], there is “heightened personal learning and job satisfaction, increased promotions, and higher compensation.” On the other end of the relationship, developers gain greater visibility and can experience broader support for their initiatives by engaging in developmental relationships [1].

The author conducted a similar study of Chief Academic Officers at research intensive institutions belonging to the Association of American Universities in 2014 [9]. The study examined how developmental relationships helped promote and prepare leaders in higher education and identified emergent developmental relationship functions specific to this population. A paramount finding of that study was the significance, effectiveness, and usefulness of role modeling in developmental relationships experienced by the participants. In addition, the study identified a unique set of functions of developmental relationships experienced by higher education leaders that are not identical to the developmental relationship functions in business sectors. The new functions specific to the population of higher education leaders are collaboration and problem solving. The importance of peer relationships and the existence of multiple developers were also key findings.

By gaining a better understanding of how leaders are developed, researchers and administrators can be more intentional and purposeful in their efforts to prepare faculty for leadership positions. There are expensive and time-consuming leadership development programs in existence; however, it is important to identify "everyday" efforts that help people succeed, learn, and grow in the workplace. By identifying explicit actions and behaviors carried out through developmental relationships, leadership development strategies can occur on a daily basis in a natural learning setting, fostering leadership for all leaders, including emerging leaders.

Methods

A qualitative approach is used for this study because the researcher is interested in how engineering faculty leaders engage in developmental relationships and their personal experiences

of leadership development. It is important to hear respondents' narratives in their own voices and to learn from them the factors that were important in their advancement into a leadership position. Ultimately, the goal of the study is to define the concept of developmental relationships in higher education broadly and engineering faculty leaders specifically in order to facilitate their promotion and preparation.

A purposeful sampling method targeting engineering faculty members who serve in leadership roles is being used to identify study participants. Specifically, faculty who have leadership responsibilities (i.e. Department Chairs, Center Directors) are being contacted for interviews. In order to identify any other faculty with leadership positions throughout the university or in national organizations web searches are being used. The author is conducting semi-structured in-depth interviews with participants (see Appendix A: Interview Protocol). Through the interviews, the author is gathering data about respondents' job experience and leadership trajectories as well as formal and informal leadership development experiences that aided in their preparation to be academic leaders. Second, the author is asking faculty to specify what happened in their developmental relationship experiences, and to what extent and in what ways the individual functions impacted their career advancement. Lastly, open-ended questions allow the participants to discuss additional strategies or actions that may not be identified through the original framework for developmental relationships in existing literature. The final question of the interview protocol asks the participant for feedback on the proposed model (Appendix B). The interviews take place in person at respondents' campus location. The author has conducted 31 interviews out of the approximately 50 participants identified.

The author will analyze the qualitative interview data using the analysis software, Atlas.ti. Using interview transcripts as well as reflective memos generated during data collection, the author will analyze the variety of developmental relationship functions and common themes that emerge from the experiences described by the engineering faculty. A phenomenological approach will be used as well as modified analytical induction to compare against the existing model of developmental relationship functions that emerged from the previous research in higher education leadership. The data collection will either validate the existing functions or add to the proposed model through this type of analysis, searching for similarities that emphasize the common factors.

Anticipated Results

The results of this study will help increase the understanding of developmental relationships in the context of engineering faculty development. Through extensive review of the literature and interviews with sitting leaders, the author will identify specific behaviors that developers in engineering can enact to promote leadership or advancement in the field. The author anticipates that all functions, especially role modeling but also including collaboration and problem solving, contribute to the leadership development of the engineering faculty who participated in this study based on anticipated results from field notes collected by the researcher.

Along with role modeling, the author anticipates finding that observation will be a central theme among leaders. Most of the engineering faculty are trained as scientists and engineers who practiced observation in their professional lives in the laboratory or in the field, allowing them to lean into a skill they are familiar with in their leadership development. Observing others and watching the environment around them – how others lead, respond, react in difficult situations– is likely beneficial in their own path. Developmental relationships serve as critical components in developing academic leaders. Everyday interactions through developmental

relationships are advantageous because the learner is immersed in the contextual setting that allows for applicable learning.

A challenge of academic leadership is the lack of systematic training or preparedness activities prior to serving in the leadership role. In data collected so far, participants have emphasized the importance of incremental steps in their engagement as an academic leader. The opportunity to lead and make mistakes when the stakes are relatively low plays a significant role in their development into academic leaders. An anticipated result for this study is the recommendation for institutions and the current leaders should purposefully identify and engage potential leaders and allow for incremental involvement and exposure to higher education leadership.

Lastly, thus far in data collection, relationships appear to be important in the participants' leadership development. Therefore, if institutions promote developmental relationship activities among their leaders, they may be more likely to develop leadership capacity. As noted in the proposed model (Appendix B) there is a duality, or a two-way effort, like in any relationship. Individuals aspiring to a leadership position should know that others have indicated the importance of these relationships and should take advantage of such opportunities. If no one is offering a relationship which exhibits development behaviors and functions, searching out individuals that would be willing to do so is recommended.

Significance

The purpose of this study is to investigate how developmental relationships help promote and prepare engineering faculty leaders. Specifically, this study examines the role developmental relationships, and the functions thereof, played in career advancement into leadership positions and leadership development for faculty in engineering and computer science.

Results from this study will inform practices for faculty leadership development and enhance efforts to support career advancement into leadership positions for engineering faculty. The specific aim of this study is to identify the key elements of mentoring relationships that help promote faculty career advancement. By investigating the developmental relationships of engineering faculty leaders, the researcher aims to create a model of leadership development based on mentoring relationships, guiding faculty on specific actions they can seek as well as actions they can provide to others, in order to promote growth in the workplace.

As academics and administrators strategize how to work with faculty to help them reach their potential, identifying everyday applications, inexpensive approaches, and scalable options is a priority. This study attends to the ways everyday interactions can help faculty advance in their careers and drills deeper into working relationships of academics. At a simple level, the proposed model can aid in faculty development efforts by providing basic nomenclature and purposeful, explicit actions in order to offer utility around the concept of "mentoring" which often times is burdensome and comes with unmet expectations.

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Appendix A

Interview protocol

Job experience narrative (leadership trajectory).

1. Please provide some background information as to your leadership progression to where you are now in academia. (What led you to become an academic leader?)

Experiences that helped prepare you to be a leader in higher education

2. Please tell me about your formal leadership development experiences? (National, regional or institutional level programs that offer leadership training and experience.)
3. Please tell me about your informal leadership development experiences? (Through day to day conversations, action learning opportunities, on-the-job learning, mentoring, networking, coaching, role modeling, sponsoring, etc.)

Developmental Relationship from participant's point of view

4. Was there a person in higher education that helped you develop as a leader in engineering? Please tell me stories about things that happened in that relationship and how it helped you.
5. Did you have multiple people in higher education who contributed to your development? Please explain.

Final questions

6. If you could tell me ONE story about something that had transformative influence on your leadership development – what would it be?
7. What do you wish those who influenced you had done differently to prepare for higher education leadership, knowing what you know now?
8. Please review the proposed Model of Faculty Leadership Relationships and provide any feedback that comes to mind (can be on content or layout or if there is something that causes you to recall a situation in your development).

Appendix B

ENGINEERING MODEL OF FACULTY LEADERSHIP RELATIONSHIPS

FUNCTION	DEFINITION	BEHAVIORS (HOW TO RECEIVE)	BEHAVIORS (HOW TO GIVE)
Sponsorship	Sharing practical experience, technical knowledge, and insights. Recognizing potential, helping to evaluate options, and making career choices.	Identify someone with status in your field who can showcase your abilities and connect you in a network. Serve on review panels. Practice deliberate engagement. Cultivate relationships with people who are invested in your success.	Commit to upward mobility and endorsement/support to others' career. Share information with junior people and be proactive to increase their visibility.
Exposure and Visibility	Making connections and opening doors; networking; advocating.	Presentations, publications, invited talks. Actively assert yourself and solicit support. Serve as a reviewer in journals in which you want to publish.	Be deliberate about asking colleagues to campus and promoting your graduate students. If you cite someone frequently, send them your articles/papers.
Coaching	Drawing on knowledge from within through guided inquiry. Increasing self-awareness and action planning.	Be open to feedback. Participate in formalize programs through trained individuals (Executive Coaching, ADVANCE)	Ask questions; refrain from directing the thinking process. Help others maximize their potential.
Protecting	Shielding someone from potentially damaging situations and making strategic decisions about service commitments.	Guidance regarding appropriate service. Strategies to prevent overload from teaching or serving on committees.	Encourage a healthy balance of work and personal lives.

Stretch Assignments	Learning opportunities through challenging work. Learning by doing. Guided discoveries.	Serve on task forces and committees outside of your domain or discipline. Act with courage; take risks.	Provide opportunities and assignments for learners to stretch their knowledge and skills to obtain experience.
Role Modeling	Being an example for how to behave in certain situations. Demonstrating skills.	Identify and observe professors, leaders, administrators you want to emulate who are navigating the academy in a way that you aspire to (and those who don't!).	Inspire others through actions and words. Show vulnerability and honesty. Show "behind the curtain."
Acceptance and Confirmation	Supporting. Positive reinforcement. Strengthening self-confidence by showing respect for work.	Ask others/self-nominate for awards and recognition. Communicate your successes. Participate in leadership development.	Acknowledge contributions. Encourage each other. Award, nominate, and recognize. On the spot reinforcement. Be inclusive.
Counseling/Advising	Providing a sounding board and developing interpersonal relationships.	Be open to feedback; have confidence in the counsel. Be aware of own biases.	Practice generative, active listening. Provide helpful and confidential input.
Befriending	Offering a personal relationship in addition to the professional one. Socializing. Sharing time outside of work.	Structure social time with colleagues inside and outside of department.	Seek to understand the whole person. Celebrate successes. Create an intellectual and social community where you feel a sense of belonging.
Problem Solving	Solving dilemmas. Strategy and decision making. Considering different perspectives. Challenging thinking and helping develop ideas.	Seek help when brainstorming solutions Consider solutions for outside your discipline – putting collaboration at the center.	Help brainstorm in a non-judgmental way. Direct them to resources. Use knowledge of profession, university, college and department to help.

<p>Collaboration</p>	<p>Working together. Building consensus on teams. Combining strengths to accomplish tasks and goals. Helping on assignments.</p>	<p>Seek partnerships with people who have complementary skill sets and purposefully expand your network. Seek accountability partners to maximize research writing and publication. Deliberately visit other faculty, get out of your office.</p>	<p>Lend a hand when others need help. Value their input. Extend invitations for collaboration. Foster and promote diverse teams. Clearly define (and communicate) roles and responsibilities (transparency). Generate success to build morale and momentum.</p>
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